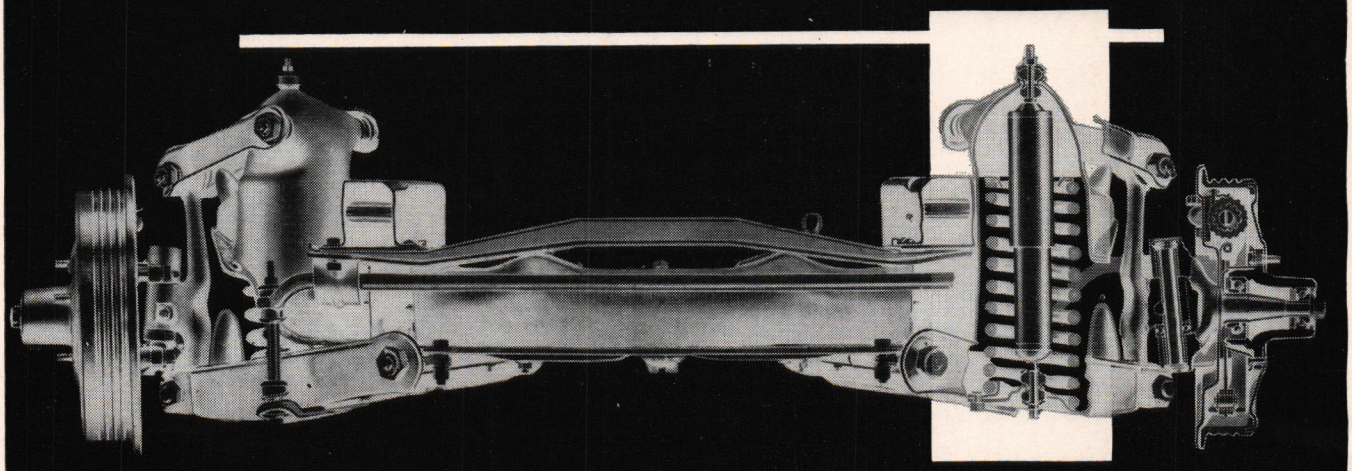
the Mechelecin

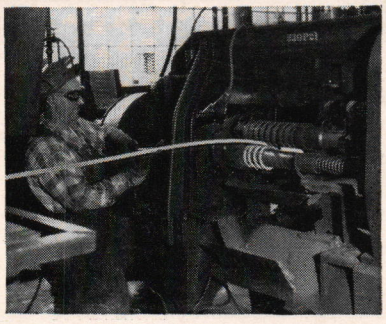
VOL. 13 OCTOBER 1953 NO. 1

SCHOOL OF ENGINEERING
THE GEORGE WASHINGTON UNIVERSITY

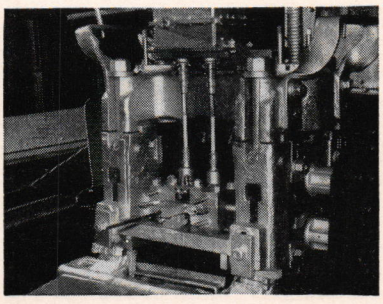
We gambled on the future

and the auto industry cashed in





● Here, at Muehlhausen Spring Division of Standard Steel Spring Co., precision-rolled U·S·S CARILLOY Spring Rounds are coiled without centerless grinding. CARILLOY Rounds have minimum decarburization, and they cost less to use.



● At the Gary Works of United States Steel, this precision mill rolls CARILLOY Coil Spring Rounds with extreme accuracy. Tolerances are half of standard: .004″ on the diameter, instead of the usual .008″, and only .006″ out of round, compared to .012″ on ordinary rolled bars.

IN the early days of the development of coil springs for front suspensions of automobiles, the only steel that was available was an ordinary hot-rolled bar from which as much as .035″ of metal per side had to be removed by grinding to insure freedom from harmful seams, pits, and decarburization. This cost money, was wasteful and time consuming.

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USS

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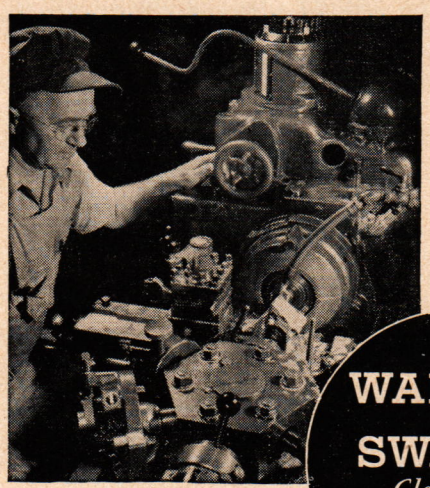
But there *is* a way to enjoy security in America (and only in America, by the way). That is, to make yourself something the world must have—a skillful farmer, a productive worker, a sound businessman. In this country it is true that the more value you add to the world and the more you add to the world's goods, the more you will be paid in return. *That* is security with self-respect —the only kind of security Americans want.



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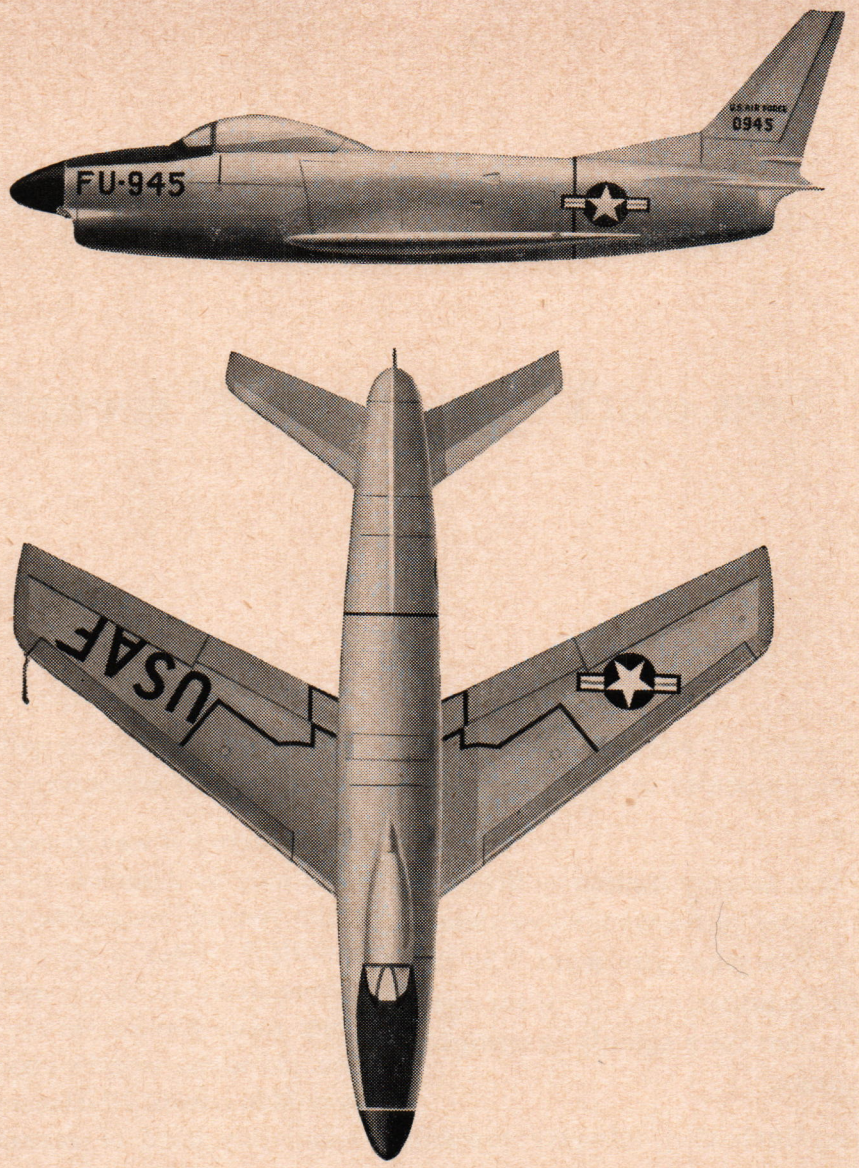

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the Mechelecive

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ON OUR COVER

Campus view of the George Washington University Library. To the left can be seen where Building D and the library were joined together to provide room to house a recently donated collection. The terrace to the right which was built in the late spring was the scene of many enjoyable dances this past summer.

FRONTISPIECE

The rear wall of Building D after the interior had been razed in preliminary stage of annexation of D and library.

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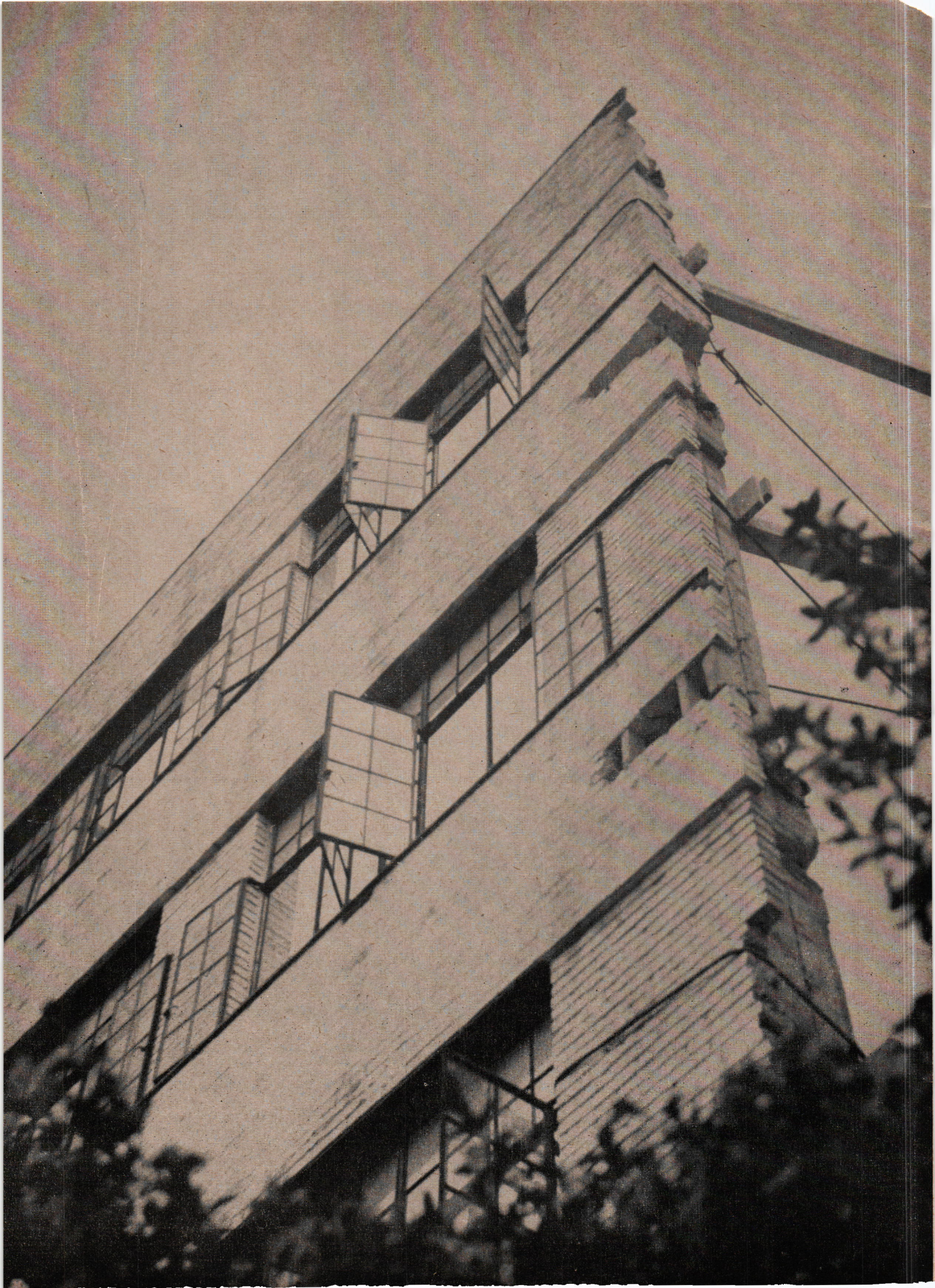


Wake Up!

The past few years have seen a great many additions and improvements at The George Washington University; the coming years will undoubtably see a great many more. All of these additions and changes have or will benefit you, the engineering student.

To recapitulate, over the past few years a new and up-to-date hospital has been erected, a whole city block has been leveled for student parking, the Air Force R. O. T. C. has been established here, a new and modern Student Union Building has been built, a modern classroom building—Monroe Hall—has been erected, and at the present time a cancer clinic is under construction.

While this may have no special significance to the typical engineering student, it points up the continued policy of the Trustees of this University in improving our campus.

This fall the engineering student will see some changes in his own domain. The curriculum of the engineers-to-be has been changed and will undoubtably prove more beneficial to the student. Graduate study in engineering will be initiated here this semester. The brethren may meet to study or gab at the Davis Hodgkins House; and within one year engineering students will be attending classes in the new engineering building.

Dispite the efforts of the University to give us the opportunity for a good college education and their efforts to improve the physical plant, there will always be the cynics and dissenters who gripe about their lot while doing nothing to improve it themselves.

The usual sad tales heard from the unhappy engineering student are: "The engineering curriculum is no good." "Participate in the engineering activities? H - - - no! I can waste my time in other ways." "Such and such should be done to the MECHELECIV, but let someone else do it." "The professional societies are a waste of time." "All-University organizations? They're for the birds." This character—now don't blush—just goes around feeling sorry for himself, trying to make others do the same. Why should he be interested in activities, aren't they just for the "Joe College boys"? He only came to G. W. to get a degree.

Wake up Buster! Why don't you recognize what the school is trying to do for you besides letting you attend class. Instead of griping, why not participate in the activities of your school? Support your respective professional societies. See what you can do to make the MECHELECIV a better magazine. Come to school with a smile on your face and take an interest in your University. And you freshmen and sophomores, participate in some activities outside the engineering school, like the other student publications and the ROTC organizations. These organizations don't exclude engineers, strange as it may seem. You can help your school, the University and even yourself if you try. Why don't you?

This Changing Curricula

by Robert van Sickler

Undergraduate in Mechanical Engineering

"If they keep changing my curriculum here, I'll be a freshman all my life," stammered the scholar waiting in the engineering office. He was one of the many uninformed students who, during the summer, has wondered what will happen to his degree aspirations in terms of the credit hours he has accumulated in previous semesters. Will he really approach a degree only asymptotically, and how will his status be affected by this new change in courses and schedules?

Of course, this question does not affect the new student, but for the student who has attended here before the answer to the problem is simple. The student may elect either the old or the new curricula depending on his desire and provided he has remained in residence during the change. Having disposed of this question in short order, it would be wise for old and new student alike to look at some of the refinements in the new curricula and see just how they will benefit the student, whether he elect the new or continue on the old.

A few years ago the School of Engineering took a survey of all of its living graduates to ascertain their opinion of its program. Of course, the survey showed what has been the object of much discussion among engineers and non-engineers alike—the lack of training in the humanities and the methods of communication. The faculty also studied the needs of the profession, numerous curriculum studies, and the educational objectives of the profession and our own students. Then, during the year following, each course was studied by the faculty to determine its contribution in the overall educational picture. The fast pace of advancement in the engineering field was also considered with relation to the preparation received in college.

Another feature of the educational program at George Washington receiving attention and that had existed for several years, was the large percentage of students who carry a relatively small number of credit hours each semester. Some interesting figures along this line are available.

Fall Term 1952

No. of Hours	No. of Students	Years to Graduate
1- 3	97	70 to 24 *
4- 6	167	18 to 13
7- 9	94	10 to 8
10-12	23	7 to 6
13-15	59	6 to 4½
16-19	74	4½ to 3½
19 plus	13	

The faculty believes the evidence that work on a degree at such a slow rate is **educationally unsound,** except as a temporary expedient, and that it penalizes the student unduly in many ways. The correlation of these and other facts led to the establishment of the new curricula, the major points of which are outlined below:

A common curriculum among all degree candidates for the first two and one-half years study. The purpose of this change is to provide a broader foundation in the engineering field, to strengthen the training in the skills of communication, to broaden the training in the fundamenal principles underlying all engineering science and to stabilize class schedules.

Series of typical full and part-time schedules of classes have been arranged on a permanent basis so the student may plan his program years in advance. Each class will be offered every year or every other year at the same time. This will aid both the student who elected to continue the old as well as the student who starts in the new curricula. By planning his program in advance the student will be assured of no class conflicts appearing in his junior or senior years.

A plan which provided for annual alternating scheduling of certain day and evening classes was drawn up. By this plan every required course will be given every year, and day and evening sections will be offered for every course common to all curricula. Off term classes are also provided for in the new scheduling for the brethren who fail a class. The upper class courses will be alternated in groups between day and evening scheduling every year, each group representing a normal load for the evening student, and yet the day student does not

* Recommended for very young students only.

have to carry an uncomfortable number of evening classes. This plans works out. Taking the Mechanical Engineering curriculum as an example, so that the maximum number of evening classes required for the day student is 10 out of a total of 56 classes required for a degree. Another improvement made possible by this system of permanent alternating schedules lies in the fact that the student will not find himself with a semester of almost all lab courses to take. The only exception to the plan of alternating groups is in the Electrical Engineering curricula. All the EE optional senior courses will be offered only at night, since the option election (communications or power) reduces student numbers to such extent alternation is not justified. The alternation schedule for the other degree candidates will proceed as follows:

Civil Engineering

Odd Years (e.g. '53-'54)

Day Classes	Evening Classes
CE 23-164	CE 151-152
147-148	181-182
149-150	192

Even Years (e.g. '54-'55)

CE 151-152	CE 23-164
181-182	147-148
192	

Mechanical Engineering

Odd Years (e.g. '53-'54)

Day Classes	Evening Classes
ME 131-132	ME 127-128
133-126	129-130
7-8	139-140
115-116	

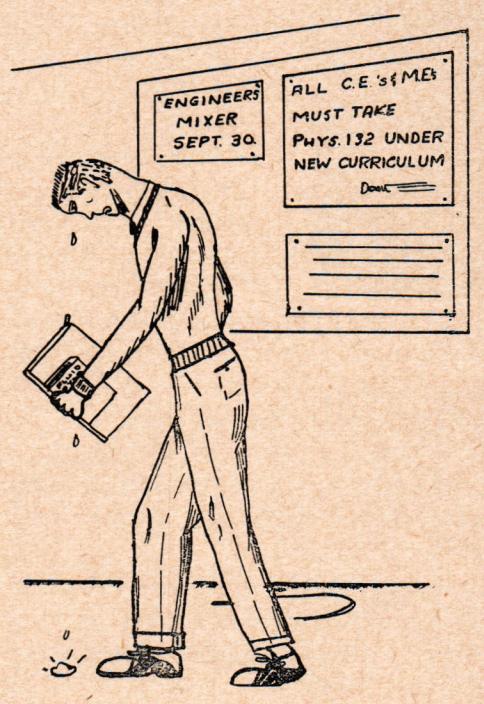
Even Years (e.g. '54-'55)

ME 127-128	133-126
129-130	7-8
139-140	115-116
ME 131-132	

Further examination of the new curricula finds the course English 11, The Writing of Technical Reports, added to the schedules of all the engineers-to-be in an effort to strengthen the training offered in the writing skills.

The importance of electronics in modern life is reflected in the requirement for electronics study (Physics 132) in all curricula.

One of the objectives in the new scheduling was to prevent the student from penalizing himself by "going over his head" in varying from the sequential order of courses. The faculty have long recognized the strength of the sequential order in the curricula and have now specified that the sequence prescribed be adhered to as part of the educational discipline.



The faculty hope this new program will prove effective educationally as well as be convenient to the student. Further changes will be made to improve the curricula as the need arises thus keeping the curricula alive and responsive to the demands of the profession.

The following table shows the variations from the old curriculum of each department:

Civil Engineering

Deleted:	
ME 141-142—Mechanical Problems	4
CE 171—Route Surveying	3
Electives	8
	15 credit hours
Added:	
English 11—Writing of Technical Reports	3
ME 13-14—Mechanism	4
Phys. 55—Physical Measurements	2
Phys. 132—Electronics	3
CE 192—Soil Mechanics	3
	15 credit hours

Mechanical Engineering

Deleted:	
CE 141—Graphic Statics	3
EE 13-14—Electrical Laboratory	4
	7 credit hours
Added:	
English 11—Writing of Technical Reports	3
Phy. 132—Electronics	3
Elective	1
	7 credit hours

(Please turn to page 30)

Dean's Column

The editors of Mecheleciv have been kind in reestablishing an earlier custom to allow me this space without editorial restriction for the expression of comments, ideas and such. They do not even require that the comments have merit, thus placing me on my mettle not to expose my abysmal lack of knowledge of much of life and its problems.

It is a privilege I value highly to have this means of informing you of what is going on in my mind and the minds of the faculty, and of commenting on matters concerning our school, on various bits of ethics, philosophy, and, I fear from time to time, trivia.

Some important changes have been made that will arrest each of you this year. Our curricula have been revised to provide a common core of fundamental studies for essentially the first five semesters of study. This has been done to strengthen your training in the important fundamentals, and to enable the School to serve you better in the scheduling of classes. We hope now to stabilize class schedules so that any particular class will be given on a definite permanent schedule. Thus you may plan your programs years in advance if you desire, with the assurance that classes will be available as you need them. Of course, if you elect to conjure up your own discipline you may find some difficulty in scheduling classes when you want them. Another advantage lies in the more effective use of your time. As in any change, some of you may suffer temporary inconvenience which all of us regret, but please bear with us for the benefits you will receive in the long run. Incidentally, Mrs. Chason, my secretary will be happy to give you a copy of the basic program schedules we have established for either full or part-time students to help you in planning your own programs.

This year we initiate our program for graduate study leading to the degree of Master of Science in Engineering. As this is written the first candidates are being selected and having their individual programs of study formulated. The response to this offering has been excellent and the faculty have high hopes that through this discipline we may serve your educational needs more effectively.

(Please turn page 28)

You Name It

The Engineers' Council, the publishers of the MECHELECIV, are considering changing the name of your magazine. The reason is the difficulty the unfamiliar have with the pronunciation and gripes from the engineering students. So, come on undergraduates and alumni, let's hear your suggestions and comments.

The Council is sponsoring a contest to find a new name, so put on your thinking caps and come through with something original.

The contest rules are:

1. Engineers only are eligible; alumni not eligible for award.
2. Judges—Engineers Council with one member of Faculty.
3. Name must be submitted in sealed envelope and presented to any Council member. Envelopes will have date of receipt and signature of Council member certifying date. These will not be opened until time of judging.
4. All entries must be subbmitted on 3" x 5" cards, or paper of same dimension.
5. No limit to number of entries per person.
6. Entrant will put name, branch of engineering, address and phone number on back of entry. Names will not be revealed until winner is chosen.
7. In case of tie, earliest received wins.
8. Award to be Engineer's Handbook of winner's choice—price not to exceed $15.
9. Deadline—December 15, 1953.
10. The Council reserves the right to leave the name unchanged.

Address suggestions to:

Bill Weidemeyer, Contest Chairman
Engineers' Council
Davis-Hodgkins House
George Washington University

A Message To

ENGINEERING STUDENTS

from Herb Rosen

President, Engineer's Council

Twice a year the hustle and bustle around the George Washington University seems to reach a crescendo of nerve-wracking pitch. The groans and moans arising from those standing in what seems to be thousands of lines are punctuated by shouts of: "Hi, how was the summer—Haven't you put on some weight"; or "What, another baby, you're working overtime boy!" Events of the past are recolored in their recounting; conversations gradually turn to the number of hours to be carried this semester and: "Let's not register for that course now, the Prof may retire this year."

To the newcomer—whether he be a newly graduated high-school senior, a man transferred from another university, or just another Joe attempting to add a couple of hours to his incomplete education—it looks like the most disorganized mass of humanity he's ever seen. In spite of the apparent confusion, a strain of organization pervades the whole process. You will see most of the professors who will lecture to you. You will learn where the far-flung buildings are located. You will learn who that nice gal Anne Chason is (the Dean's secretary).

Most of this will be learned on your first registration day; but what about the other functions of the University? How does a fellow meet another student with similar interests. For that matter, once you find that fellow, where can you go to beat your gums—and brains? In answer to the first question, GW's Engineering School sponsors student chapters of the American Societies of Civil and Mechanical Engineers, the American Institute of Electrical Engineers and the Institute of Radio Engineers. For those who enjoy the social niceties of professional associations, Theta Tau, National Professional Engineering Fraternity has established Gamma Beta Chapter on the G. W. Campus. And if by the time you reach your junior year and if your quality point index (an index of how well you are doing scholastically) is high enough, you may be invited to become a member of Sigma Tau, National Honorary Engineering Fraternity. These six organizations have formalized their activities by organizing the Engineers' Council. The Council is composed of two representatives from each of the member societies, the business manager of Mecheleciv (your student-operated engineering magazine) and the manager of the Davis-Hodgkins House. Which brings up that second question about where you can chin with your fellow student. The University has given the Engineering Students a house—The Davis-Hodgkins House at 731 - 22nd Street—in which to hang their hats and sharpen their slide rules. There a group can beat a problem to death over a cup of coffee or just grab a quick nap between classes. It's open between 8 a.m. and 12 midnight. Why don't you drop in and get acquainted with the place.

Now, getting back to the Engineers' Council, you might call it the house of representatives of the engineering students—we are all elected from the member societies to serve one year. We act on your suggestions about the curriculum, the school, or the faculty by maintaining a close liaison between the Dean of Engineering, Dr. Martin Mason and the Student Council of the University. We also plan the several all-engineering functions throughout the school year—we plan it, and you do all the work of having a damn good time. The first big affair we plan is the Engineer's Mixer, which was the real reason for my writing this article—we've planned the Mixer and it's up to you to make it a success. But you may very well ask what in the world is the Engineers Mixer?

(Please turn to page 28)

Faculty, alums and students at last year's Mixer

The Engineer

IN PUBLIC LIFE

by Norman B. Ames

Professor of Electrical Engineering

Prof. Ames takes a very active interest in the civic affairs of his community. He served as chairman of the Charter Committee in nearby Montgomery County and is active in Church affairs. Often he stresses to his students the fact that they should not become solely concerned with their engineering but should be familiar with the civic and political problems of their community and country. Space does not permit us to say more of Prof. Ames, however, his biography may be seen in Mecheleciv, Nov. '52.

The Mecheleciv requested Prof. Ames to write on this subject and he responded with this excellent paper. We believe this is one of the few if not the only paper presented on this subject.—Editor.

The tremendous expansion of engineering in peace and war has rather completely occupied the engineer. He has had little time for other service, particularly that of a purely public nature. Professionally, he has contributed much to society and civilization and record of such contribution may be found in many publications. The record if his contributions in public life is neither profuse nor precise. Apparently he has not been active or he has been too modest or his contemporaries have been grudging in their recognition.

Engineering is a profession with status equal to those of law, medicine and education—to name a few. Obviously, one must, first of all, be a good all-around citizen. It is assumed that professional obligation to society is first, political obligation second. If this be correct, one's education and training should prepare him for professional service primarily and political or social service secondarily. The suitability of preparation for both will depend in the relationship or proximity of the areas of service.

Engineering in its strictest sense is a precise profession; it deals with methods and things. Preparation for it includes intensive study in mathematics, physics and chemistry with appropriate engineering extensions of these in the fields of mechanics, heat, light, sound, thermodynamics, hydraulics and electricity. Usual curricula contain considerable work in English, public speaking, economics and related fields. Roughly, half of the requirements are in engineering subjects and half in non-engineering subjects. The conservatives have doggedly resisted the modern trend to emphasize basic fundamentals and replace "application courses" with "humanities."

This sort of training has usually equipped the engineer for the responsibilities of his profession. In most instances his academic training is reinforced by specialized training of varying amount upon employment. This specialized training and the increasing responsibilities of his job leave little time for outside activities. The young engineer soon finds himself as committed to his job as he was to his studies. He has little time to reflect upon or participate in the usual activities of public service.

Occasionally the statement is made that the initial intellect most effective for successful development in engineering will not be effective in other activities but this is a debatable conclusion. Exceptional intellect, with persuasive training and environment, can probably be developed successfully along any one of several lines. Usually, development in engineering does not stimulate development along unrelated lines and particularly public service. Law and business, on the other hand, are inseparably related to public service and provide a natural incentive and opportunity for such service.

The usual pattern of professional progress, beginning in college or even high school, is that engineering leads the individual away from interest in public service while other professions lead him toward public service. Engineering training and experience do not disqualify him for public service. They simply do not qualify him for it. Unusual circumstances, however, may compel his interest and participation. He must then undertake something for which he is not qualified and this is contrary to his whole philosophy of sound foundation for whatever he undertakes. There are, of course, many exceptional situations for which the engineer, because of his technical training and experience, is perfectly qualified.

The practical result of this is that engineers rarely seek public service and are rarely sought for prominent positions in such service. Only one of the 34 presidents of our Nation has been an engineer. His record as president is not impressive from any viewpoint. He has held successfully many other high national and international positions including membership on

commissions to reorganize government. Increasing numbers of engineers are found in other government positions at the state and national level. Accurate statistics over many years are not readily available and would require a great deal of research. Currently, we find engineers as: Cabinet members—one (Wilson); U. S. Senators—one (Malone, Nevada); U. S. Representatives—one (Miller, California); State Governors—two (Persons, Alabama and Koehler, Wisconsin).

In industry and education the record is little more impressive. Engineers have held top executive positions but the cases are exceptional. The figure of 30% in industry has been mentioned. Lawyers and business men usually hold the top positions in industry. Even presidents of the former National Electric Light Association, predecessor of the present Edison Electric Institute, were often lawyers and the president of the Association of Electric Power Companies is a business man and lobbyist!

Dr. Robert F. Pearse in "Slide Rule Logic and the Engineering Evecutive"—**Ergonetics,** June 1953—deplores the dim view taken by some people who answer the question "Do engineers —as a group—make good executives?" with another question, "Why spoil good engineers trying to make poor executives out of them?" Further, he says: "These people hold that the qualities of accuracy, precision, planning and careful attention to detail, characteristics of the engineer, tend to make him inattentive to human relations and impatient with human foibles. As a consequence, they say, the engineer just isn't geared to be effective in working through other people."

At lower levels of public service, a different situation prevails. Engineers frequently hold —and successfully—part-time positions in local business, civic and welfare irganizations. They are sought out for boards of education, county or state government, church and welfare. The explanation is apparent. At this level they are known and appreciated, and they are willing to devote some time and effort compatible with their professional work. There is willingness and admitted ability for the limited service. They are generally successful and happy.

We must now answer a question which is becoming increasingly insistent: What is the full measure of the engineer's responsibility in his community, in his nation and in his civilization? Heretofore he has conscientiously sought and obediently accepted his conceived place in the pattern of society, done the things he felt qualified to do and complacently left to others the bigger and bolder tasks which may affect the very destiny of nations and civilizations. He has built dams, highways, bridges, railroads, radios, autos, airplanes and atom bombs and left their direction to others—in many cases to cheap and unscrupulous politicians. He has been, in reality, a "Little Red Riding Hood" with a slide rule instead of a basket!

Two courses of action are open; he may try to produce a breed of real public officials at all levels and statesmen at the top level, or, he may lay down his slide rule and tackle the public service job himself on a full time basis. The record reveals that generally the latter course leads to disaster for all concerned when attempted abruptly. He should know this because he knows that real success always depends on opportunity, training and experience. More good intention and willingness are not sufficient in engineering and certainly not in politics.

Clearly, the immediate need is for greater interest on the part of more engineers in their own community. Engineers are generally respected in their community and can wield a tremendous influence upon their neighbors and associates. They can stimulate a wide and intelligent use of the ballot and the ballot is the most powerful instrument in the enlightened and free world.

Stimulation of a breed of real public officials and statesmen will follow naturally but slowly from stimulated and vitalized public interest and opinion. History reveals that great crises have produced a Disraeli or a Lincoln or a Churchill but the chances are slim and the consequences great. Again, the engineer knows, from training and experience, that the solution of an important situation cannot be left to chance or fate.

Let us assume, therefore, that the engineer's first and foremost obligation to his society is sound engineering and his second obligation unswerving insistance upon and vigilant assistance in sound public affairs. Present educational and training procedures, while by no means perfect and ultimate, equip him for the first obligation. But what about the second? The answer is broadly the same as for the first —training and experience. It is feasible. It is simple.

We must return to the "point of beginning" in the development of the individual—certainly the college or university and preferably the high school, the grade school and the home. Parents and teachers must instill the fundamental principles of honesty, integrity, loyalty, industry and discipline in the developing child. Curricula in school and college must be sup-

(Please turn to page 22)

Artist's conception of the new Law Center. It will be eight stories high and approximately four times as large as the present Law School, Stockton Hall. The new Law Center will contain 25 classrooms, 30 offices, 10 conference rooms, 3 libraries and a 2000 seating capacity auditorium.

Site has not been announced.

NEW LAW CENTER

The campaign to raise funds for the new Law Center at the University got underway at the May Meeting of the G. W. Association when over 300 Alumni met at the Willard Hotel and voted unanimously to raise $500,000 among Law School Alumni as the first phase in the campaign. The total goal is $4,500,000. This includes an endownment fund of $1,500,000, the income of which will be applied to current operating expenses.

In May 1951 the Board of Trustees of the University adopted a Resolution endorsing the Law Center Plan. Since that time the Law School has greatly expanded its formal courses, seminars, research and legal writing. A teaching fellowship program was initiated in 1952-1953. Important related activities have also been inaugurated. Among these are the patent, trade-mark and copyright foundation; the Washington Foreign Law Society, which conducted a highly successful series of lectures on the Law of the Moslem Near East; and a cooperating relationship with the American Law Institute to provide continuing legal education courses for members of the Bar.

The Law School, in addition to its formal legal training and curricula leading to the conferring of professional degrees, is assuming a responsibility for the advanced education of members of the Bar and further development of the legal system.

ADDITION TO EE FACULTY

The Board of Trustees recently appointed Mr. Donald J. Hanrahan, a former graduate of G. W., as Assistant Professor of Electrical Engineering for the Academic year 1953-54.

After graduation from George Washington in 1950 Professor Hanrahan became a specifications writer at the Engineer Research and Development Loboratories, Fort Belvoir, Virginia. In 1951 he was employed by the Allis-Chalmers Manufacturing Company and worked in the Milwaukee, Pitttsburg, Cincinnati and Boston plants. In April of 1952 he returned to ERDL as a test engineer and was in the research and design section of the Electrical Power Branch at the time of his appointment.

The MECHELECIV staff, on behalf of the student body, extends a hearty welcome back and best of luck to Professor Hanrahan for the coming school year.

PROF. SCHWAB TAKES JOB WITH U. S. STEEL

Professor Alvin Schwab, who has taught Civil Engineering at George Washington for the past six years, has accepted a position with the American Steel and Wire Division of U. S. Steel in New York City. Professor Schwab who is best known here for his course in Prestressed Concrete has also taught Strength of Materials, Graphic Statics and Bridges Stresses.

Last February, with help from the student chapter of the A. S. C. E., he arranged a prestressed concrete symposium here at George Washington which was climaxed by an actual load test of a prestressed beam he designed for a church in nearby Arlington County. Mr. Schwab in his new position will help promote

the use of welded steel reinforcing rods and also reinforcing rods for prestressing.

Professor Schwab was Resident Engineer with the Southern Railway here in Washington before accepting the position with U. S. Steel.

GOODBYE BUILDING X — NEW DRAWING LABS PLANNED

The University announced recently that Building X on twenty-third street, which formally housed the drawing labs, will be razed sometime this fall.

Draper Hall, a former veterans' dorm, will be renovated to hold the new drawing labs. Plans announced at the time of publication called for three drawing rooms and one classroom for the eastern half of Draper. The remainder of the building will be used for construction offices for the new Tompkins Hall.

ASTM STUDENT MEMBERSHIP PRIZE ESTABLISHED

At a recent meeting of the University Board of Trustees, the Board accepted the offer of Mr. Martin Mahler, prestressed concrete consultant, to establish the perpetual "Martin Mahler Prize in Materials Testing".

This prize consists of a one year membership in the American Society for Testing Materials and is awarded to the upper division or graduate student in engineering who submits the best reports on tests in the Materials Laboratories course with preference given to prestressed concrete tests.

The first students to receive the award will be selected in the 1953-54 school term.

READ THIS !

This column is called News and Views, yet lately it has been all news and no views. Let's hear from some of you engineering students and alumni who have a bone to pick or a gripe to get off your chest. If there is something you don't like or do not approve of let us know and we can air your feelings and see if others think the same as you. In our next issue we are going to reestablish a "Letters to the Editor" column. The success and continuance of this column depends on you the reader. If you do feel that something is wrong and want to make known your feelings, why not enclose your suggestion for improvement. Constructive criticism is welcomed by anyone with good judgment.

The Editors of The Mecheleciv will endeavor to answer everything we possibly can; if we are not able to do so we may ask Dean Mason to discuss the problem in question in his column provided the problem is of a general nature.

MIXER OCT 7

HOW TO DESIGN FOR LOWER STRUCTURAL COSTS

WITH today's accent on cost, there is a promising future for the designer who can simplify structural designs to save steel and construction manhours. Such savings are being realized every day by the use of arc welding instead of riveting in the construction of all types of industrial plants, multi-story buildings and bridges. By eliminating rivets and taking advantage of rigid framing and continuous beam construction, welded designs help to offset the rising costs in labor and materials.

Shown below is a typical example of how full structural continuity achieved through arc welding effected savings of $22,000 in the construction of an 87,000 square foot process warehouse. Arc welding actually has saved 1.68 pounds of steel per square foot. At $0.15 per pound for fabricated steel, the saving amounts to $22,000 over the cost of steel alone had riveted design been used.

In spite of the rapid progress made in the construction field by the welding industry, new developments are taking place every day which are of prime importance to the structural engineering graduate. Latest information on welded structural designs is available in handbooks and bulletins simply by writing to The Lincoln Electric Company, Cleveland 17, Ohio.

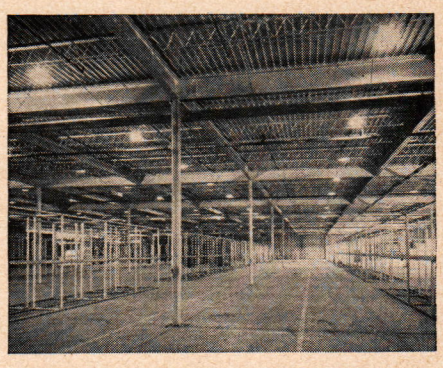


Fig. 1. Process warehouse *for the Hale-Halsell Grocery Co., Tulsa, Oklahoma. Size 250' x 350' with 16' clear height. Contractor: Tulsa Rig and Reel and Manufacturing Co. Consulting Engineer: David R. Graham & Associates, Tulsa, Oklahoma.*

THE LINCOLN ELECTRIC COMPANY
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THE WORLD'S LARGEST MANUFACTURER OF ARC WELDING EQUIPMENT

ENGINEERING PERSONALITIES

Every student in the school of Engineering at some time or another meets Anne Chason, Dean Mason's efficient blond secretary. Even though not an actual member of the faculty, she is considered a very important part of the Engineering School staff, for this reason she has been selected as a personality for this time.

Anne, as she known to many of the students, was born and raised in Hazleton, Pennsylvania, She came to Washington in September 1949 to attend classes at George Washington.
It was at G. W. in one of her classes that she met Aubrey Chason, whom she later married on September 6, 1952.

Although she carried a full schedule and also worked during most of her time at G. W., she still found time to be active in several organizations on campus including the Spanish Club, the Newman Club, and the Glee Club.

She began her secretarial career soon after starting G. W. in the Veterans Administration. In October 1851 she began working for the University in the office of the Dean of Engineering, and in May of 1952 she began her present position.

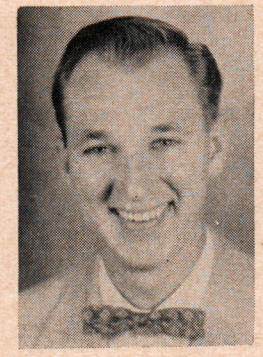
It was also in May 1952 that she received her Associate of Arts degree from George Washington. Although she is not now taking courses, she plans to continue on toward a Bachelor of Arts Degree in the near future.

As for recreation, the attractive secretary is an ardent bridge player, and during the past summer she was introduced to the sport of fishing by her husband.

Life in the Dean's Office is not all routine, Anne relates. One of her duties consists of making appointments for Dean Mason. Last year, she recalls, one of the students casually entered her office and asked to see Dean Mason. "I'm sorry but the Dean is busy, she told him, "You'll have to make an appointment."

"That's too bad," replied the student, "I just wanted to tell the Dean that Building X was on fire."

Mrs. Chason has on her staff one full time assistant and one or two part-time clerk-typists, for in addition to the normal secretarial duties of the office, she helps keep the records of the Engineers' Council up to date.



How many of you engineers have ever stopped to think who does the planning and the preparation for the annual Engineers' Ball. Probably none. All you probably think of as you head home with tired feet, light head and near empty bottle clutched tightly under one arm and leaning on the little woman for support with the other is, "Darn, I had a great time tonight, don't want to miss the next one." The man mainly responsible for the success of the last two Balls is Tom Flanagan, the Chairman of the Engineer's Ball Committee for the past two years. Maybe you haven't yet met Tom, but when and if you do you will find a tall, personable, blond young man with a big smile that makes you feel you have known him for some time.

Tom was born in nearby Hyattsville, Maryland back in November, 1926. Although a Marylander by birth, Tom is a Floridan by choice. At the age of six the Flanigans moved to Miami, Florida. He went through grammar and high school there and then joined the Coast Guard and patrolled the pacific coast for eleven months on a Coast Guard Cutter looking for submarines. Having found no subs and the war over and his enlistment up, Tom returned home and enrolled at Stetson University in Deland, Florida, where he took a course he describes as pre-engineering. While at Stetson Tom met his bride-to-be, Betty. After two years at Stetson and marriage, the Flanagans headed north to Washington, where Tom went to work for the District of Columbia Department of Highways, where he is now an Engineer.

In 1950 Tom enrolled at The George Washington University and has been going, like many others, part-time in the evening.

Even though Tom has been a part-time student for the last three years, he has found time for many extra-curricular activities. He has served on the Engineers' Council for two years and as mentioned before was chairman of the Ball Committee both of those years. Tom has been Treasurer and at present is Regent of Theta Tau. He has worked on the circulation and business staff of the MECHELECIV.

In his spare time, of which there is not much, Tom likes to get out on the links. He is

(Please turn to page 24)

It took 100 years of engineering

See that tiny speck of oxide on a hair-like wire? It's called a thermistor, and it's the first practical *thermally* sensitive resistor. It's so sensitive it will measure temperature variations within one-millionth of a degree. As a circuit element and control device, this small, stable and rugged unit has a place in a variety of electrical circuits.

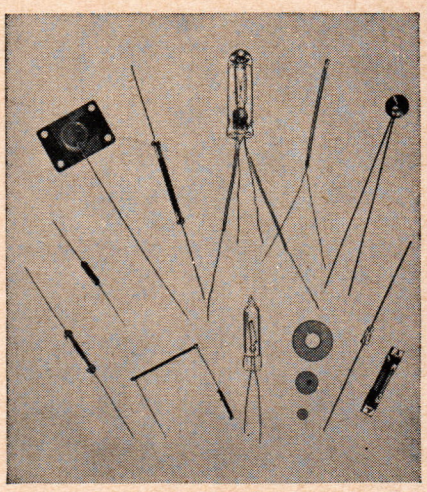
Although the thermistor is the smallest and, in appearance, one of the simplest devices made by Western Electric—manufacturing unit of the Bell Telephone System—it was more than 100 years in the making.

Back in the 19th Century—some time before Western Electric was founded in 1869—Michael Faraday studied a curious thermally sensitive resistor material similar to that used in 20th Century thermistors. As Faraday and others after him discovered, the trouble with making effective use of this material was that different units made by what seemed to be the same process, showed large variations in their behavior. The problem of how to control the amount of impurities present in the material was finally solved a few years ago by our research team mates at Bell Telephone Laboratories.

At Western Electric's Allentown (Pa.) Plant hundreds of minute thermistor components are electrically tested and sorted every day. The basic component, an oxide, has a large negative temperature coefficient of resistivity.

Once beyond the laboratory stage, Western Electric's engineers tackled the job of *mass-producing* the hard-to-handle oxides. After many trials they got a pilot line in operation—then a full scale production line through which compressed powders of thermistor material could be sintered into a strong, compact and homogenous mass. Today reliable thermistors are being made in many shapes and sizes—small beads, rods, discs, washers—to meet varying circuit and design problems. To make this possible, Western Electric engineers had to find new ways to apply a slurry of oxides on wire; new ways to extrude and mold oxide mixtures.

At every turn, the thermistor has presented fresh challenges to our engineers. Engineering is like that at Western Electric—where technical men of varied skills pool their knowledge in a constant search for new and better ways to do things.



The thermistor takes many forms depending on the resistance and power-handling capacity needed in a particular circuit.

WANT TO KNOW MORE?

Send the coupon below for a copy of the 16-page technical monograph entitled, "Thermistors as Components Open Product Design Horizons."

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• Welcome to the School of Engineering. We are very glad to have you with us this year and hope that we will see you often at our many affairs throughout the coming semesters. Whether you are a freshman or a senior—now is the time to join your respective Professional Society. Take advantage of their varied and interesting meetings and social functions. Once you become a member, take an active interest in the society. If you do not approve of the type of meetings, social affairs or general business procedures, let others know it. These societies exist for you—for your professional growth as engineers and as good, active citizens. The most successful engineers are those who mix well with people, in addition to knowing the technical side of their work, and who, through their social activities, have made numerous friends and contacts.

We all know that good scholastic work is important to the engineer. But the ability to talk and write effectively, to meet and work with others, and to know the allied fields is just as important. The experience you gain from participating actively in your society is invaluable in this respect. These societies also offer you the lighter side of college life by bringing you relaxation and enjoyment of pleasant fellowship.

The Societies meet on the first Wednesday of each month during the school year.

ASME

• The George Washington Student Branch of the Student Branch of the American Society of Mechanical Engineers is composed of students in the School who are studying Mechanical Engineering.

On the first Wednesday of each school month the ASME has a combined social and technical meeting. Speakers from the Washington area and representatives from companies are invited to give talks on various aspects of mechanical engineering. Movies are often included in the program. Refreshments are usually served after the meetings, giving members a chance to get better acquainted with their fellow students and their professors. The Student Branch also arranges inspection trips to places of interest, such as the Naval Gun Factory, the Naval Ordnance Laboratory, the Bureau of Standards, and generation stationn of the Potomac Electric Power Company. These trips are free and are scheduled for the the benefit of the student.

In addition to the student officers of the Branch, an Honorary Chairman is selected each year from the faculty of the Mechanical Engineering Department to aid the student officers in the administration of the affairs of the group.

The Washington Section of the ASME is the sponsor of the G. W. Student Branch and has opened its meetings to student members. The national organization makes an annual monetary contribution to the Student Branch. In addition to the above, the national group offers awards for various student papers. Student members are invited to attend the national conference and the regional student conference held annually.

Officers of the Society are John Rice, Chairman; Casey Mohl, Vice Chairman; Henry Pares, Secretary; and Kingsley Brown, Treasurer.

IRE and AIEE

• The G. W. U. Joint Branch of the Institute of Radio Engineers and the American Institute of Electrical Engineers presents all double E students with an opportunity to participate in their own professional society and to become acquainted with other engineering associates who are either studying or practicing their profession. At each meeting noted authorities on Electrical Engineering speak on subjects of common interest to both communication and power majors or movies are shown. After each meeting there is a social get-together to enable one to become better acquainted with his fellow students and his professors.

A high spot in the calendar for the AIEE's is the annual Section Branch Dinner meeting held in the spring. Here the undergraduate has the opportunity to meet and discuss engineering topics with men who are established in the electrical engineering field.

For the coming year the AIEE adviser is Prof. Norman B. Ames and the IRE adviser is Mr. George Abraham.

Officers of the Joint Student Branch are: Claire Kennedy, Chairman; Bill Harris, Vice Chairman; John Dodge, Secretary; Bernie Kilday, Treasurer.

ASCE

• In spite of our rather underrated talents the Civil Engineer has come far since his beginning, which incidentally dates back to the beginning of time. Our society, the oldest professional engineering society in the United States, is celebrating its centennial anniversary this year. There are 73 local sections located throughout the United States, Hawaii, Panama Canal Zone, and Puerto Rico. Membership in these local sections is almost 35,000, and students chapters have been established in 133 engineering colleges. George Washington University is and should be proud of their chapter as it is an outstanding one. This chapter has three times submitted prize winning annual reports and last year sponsored a prestressed concrete symposium which attracted many well known engineers and representatives from Preload Corp. and Portland Cement Association. Membership to this society is open to candidates for the B.C.E. and B.S. in E. degrees.

Our chapter here at G.W.U. has been and we hope will remain a very active chapter. It offers a variety of activities; namely social, business, technical and participation in the activities sponsored by the Engineers' Coun-

(Please turn to page 24)

Out of the dark...

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- Development and design of radio receivers (including broadcast, short-wave and FM circuits, television, and phonograph combinations).
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ALUMNEWS

ATTENTION ALUMS!

This page of your magazine is exactly what it is called, Alumni News. Have you ever stopped to think that perhaps someone you went to school with you would like to know where you are or what you might be doing. Drop a line to the MECHELECIV and give us a rundown on yourself so we can let your friends know where to reach you.

Kenneth Ray Brown, B.E.E., 1949, has joined the engineering staff of the Bendix Products Division of Bendix Aviation Corporation, South Bend, Indiana, where he will work in the guided missile section.

Mr. Brown will take part in a $50,000,000 a year engineering program which includes a technical staff of more than 6,000 in all divisions of Bendix. The program includes new developments in such fields as aviation electronics, aircraft and automobile components, television and many others in addition to guided missile research.

Mr. Brown is a member of Theta Tau fraternity.

W. Stanley Clabaugh, B.S. Chem., 1953, recently received the Department of Commerce silver medal for "outstanding contributions to the field of reagent chemicals, and for accomplishments in the field of inorganic and analytical chemistry". Secretary of Commerce Sinclair Weeks presented the award to him in a special ceremony at the Department of Commerce auditorium.

Mr. Clabaugh joined the staff of the National Bureau of Standards in 1929, and is now a chemist in the inorganic chemistry section.

He has written several technical papers on electrodesposition and reagent chemical specifications and is a member of Alpha Chi Sigma and the American Chemists Society.

John A. LeReche, B.E.E., 1943, is presently employed in the photometry and colorimetry section of the National Bureau of Standards. The outstanding work that Mr. LeReche has been performing is reflected in the National Bureau of Standards Summery Technical Report No. 1766, "Focus and Quality Determination of Searchlight Reflection."

Sanford B. Newman, B.S., 1936, M.A., 1941, Ph.D., 1951, recently received the Department of Commerce silver medal for his outstanding contributions to the science and technology of microscopy of organic and fibrous materials." Secretary of Commerce Sinclair Weeks presented the award to him in a special ceremony at the Department of Commerce auditorium.

Dr. Newman joined the staff of the National Bureau of Standards in 1940 and is now a microanalyst in the testing and specifications section of the organic and ribrous materials division.

He has written a number of technical papers in his field and is a member of Sigma Xi, the American Society for Testing Materials, the American Association for the Advancement of Science, the American Association of Textile Chemists and Colorists, the American Botanical Society, and the Electron Microscope Society of America.

Art Roa, B.E.E., 1952, has been working in a D. C. motor redesign project at the River Works of the General Electric Co. He expects, in the near future, to be permanently assigned in Pittsfield, Massachusetts.

Rees F. Tener, M.S. Chem., 1926, recently received the Department of Commerce silver medal for his "extremely competent performance of duties, particularly in research, testing, and development of specifications relating to organic and fibrous materials." Secretary of Commerce Sinclair Weeks presented the award to him in a special ceremony at the Department of Commerce auditorium.

Mr. Tener joined the staff of the National Bureau of Standards in 1924, and is now a technologist in the testing specifications section of the organic and fibrous materials division.

Rudolph F. Belser, B.C.E., 1950, was recently commissioned ensign in the Navy's Civil Engineer Corp. Rudolph along with 148 other successful candidates received his commission June 12, 1953 at the Navy's Officer Candidate School at Newport, Rhode Island.

Henry E. Motto, B.M.E., 1949, is presently residing at 26731 Woodmont, Roseville, Mich. Henry recently became plant engineer and maintenance supervisor for Misco Precision Casting Co. in Detroit.

Congratulations on your promotion Henry and thanks for your subscription.

Mike Rapport, B.E.E., 1953, is an Electronic Scientist at the Naval Research Laboratory. Mike has developed a high requency locking oscillator which has since been patented. This fall he is doing graduate work at the University of Maryland Extension at the Laboratory.

What's Happening at CRUCIBLE

about Alnico Permanent Magnets

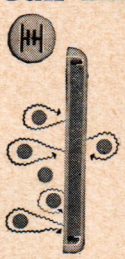
You will find Crucible Alnico Permanent Magnets in products ranging all the way from cuff links to magnatrons. Here are just a few unusual applications in which these magnets were used to simplify or improve a product.

This is Warren, age 4, a cerebral palsied youngster, using magnetic toys in therapy-play.

Magnetic Toys Cerebral palsied youngsters at the Children's Rehabilitation Institute, Cockeysville, Maryland, are unable to play with normal toys. Their lack of muscular coordination and control, causes ordinary blocks or toys to slip through their grasp and fall to the floor. Crucible helped overcome this problem by imbedding small permanent magnets in the toys. By using these magnet-equipped toys on metal topped tables, the children are able to control them much more easily.

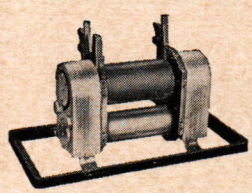
The Children's Rehabilitation Institute has pioneered techniques to help these handicapped children gain maximum muscular control and coordination. Experience at the Institute has shown that the use of magnetized toys helps develop coordination in hand and arm use, and in grasping and releasing.

Cuff Links One manufacturer of cuff links had a happy idea. He replaced the stem with a magnet assembly designed by Crucible magnet engineers. The tiny, powerful aspirin-sized magnets used, gave the finished product a holding force at the pole plate as high as 80 ounces troy.



Enlarged cross section view of one cuff link.

Telescriber-Recorder In one application, for this instrument that transmits written messages over wire, two permanent magnets were being used to match the electromagnetic fields. Assembly time and unit costs were high. Crucible magnet specialists designed one permanent Alnico magnet to replace the two. Magnet costs were cut 50% ... and efficiency of the unit was increased.



Top bar Crucible Alnico; lower bar (replacing former 2nd magnet) provides return path.

Engineering Service Available

Perhaps your magnet problems are entirely different from these. Whatever they may be, our staff of magnet and electronic engineers will be glad to tackle them, and to work with you in meeting your magnet requirements. Don't hesitate to call us when you have an application for permanent magnets.

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National Drawn Works, East Liverpool, Ohio • Sanderson-Halcomb Works, Syracuse, N. Y. • Trent Tube Company, East Troy, Wisconsin

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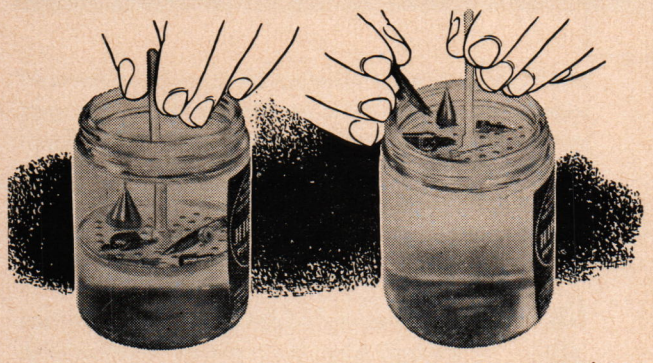

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(Continued from page 13)

plemented and reinforced with the simple fundamentals of living.

Engineering curricula may have to be revised to permit more participation in available extra-curricular activities of debating, publications, student government, athletics, religion, etc. There are the professional societies and the fraternities—professional, honorary and social. It is simply a packed and hectic preview of the life that is to follow, and good training and experience. It can be done because it has been done. An engineer has been president of the university Student Council; another has been president of ODK, honorary leadership fraternity.

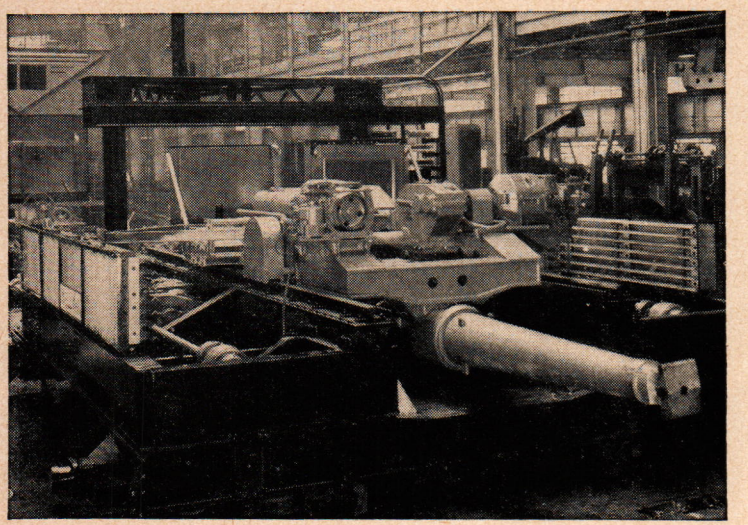
Readjustments must also be made in the usual routine in the early years following graduation. Some extra-curricular activities begun in college must be continued and some new ones undertaken. The church, welfare and civic organizations such as the Community Chest, Cross, YMCA, Boy Scouts, Junior Chamber of Commerce, etc., are excellent opportunities for community contacts and service. Voting residence should be established, civic activities attended and assisted, political issues and leaders studied. Active membership in social clubs, citizens associations and the Bureau of Municipal Research is desirable. There are increasing responsibilities of home and profession but this is the greatest era of challenge and expansiin in the whole life span. Capacity for training and experience reaches its peak here.

The years go by. Life becomes more settled and more tranquil. Professional competency and compensation reach their peak. Training and experience are paying off. There is relief from routine and more time for participation in public life. Civic stature and prestige mount. The engineer becomes a power in church, education, welfare and civic affairs—in short—in the community, the state and perhaps in the nation. His advice is sought in civic affairs and projects, and in political matters. He may be asked to accept public office at any level and can do so with "engineering" confidence because he is qualified by training and experience. And he'll be a success.

About this same time the engineer becomes qualified for service in the important and lucrative field of management which deals with people and money as well as methods and things. It requires abilities to plan, organize, measure and coordinate in the utilization of the basic resources of men and materials. The management engineer is needed in industry.

(Please turn to page 26)

Another page for **YOUR BEARING NOTEBOOK**

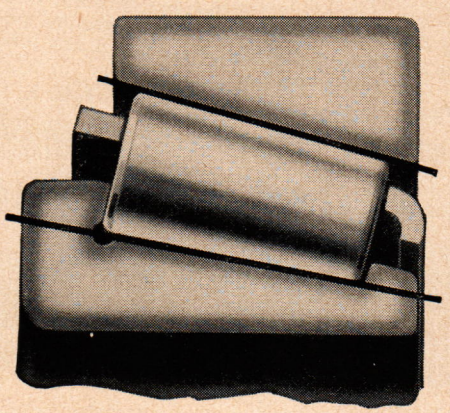


How to carry a floor charger's 12-ton overhung load

This floor charger charges and levels 12 tons at a crack in open hearth furnaces. The 12-ton overhung load and the terrific shock loads set up by the charging operation are carried by the peel shaft bearings. To take these loads and to keep the charger in top operating shape, design engineers specify Timken® tapered roller bearings.

Line contact gives TIMKEN® bearings extra load-carrying capacity

In Timken bearings, the load is carried on a line of contact between the rollers and races instead of being concentrated at a single point. Rollers and races are case-carburized to give a hard, wear-resistant surface over a tough, shock-resistant core. And to be sure of getting the highest quality bearing steel, the Timken Company makes its own.



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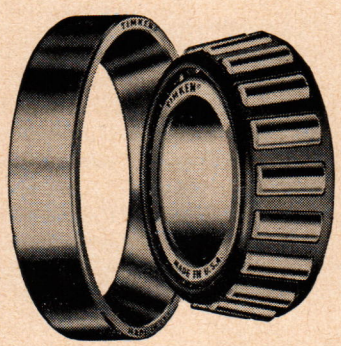
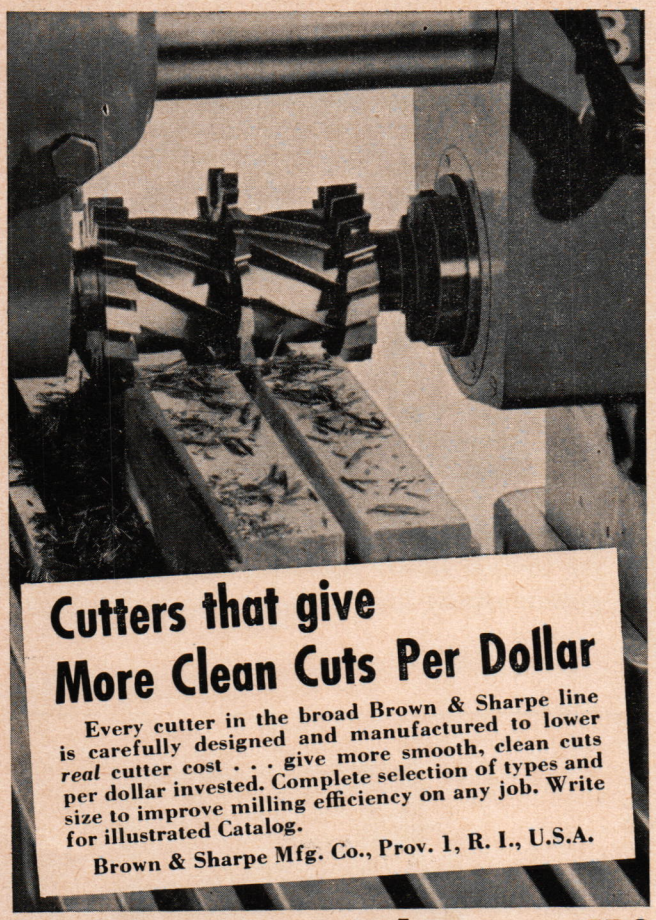
TAPERED ROLLER BEARINGS



Want to learn more about bearings or job opportunities?

Many of the engineering problems you'll face after graduation will involve bearing applications. For help in learning more about bearings, write for the 270-page General Information Manual on Timken bearings. And for information about the excellent job opportunities at the Timken Company, write for a copy of "This Is Timken". The Timken Roller Bearing Company, Canton 6, Ohio.

NOT JUST A BALL ○ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION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452 Swann Avenue, Alexandria, Virginia

SOCIETIES & FRATERNITIES *(Cont. fr. page 24)*

also pretty handy with his hands and does a little woodwork at times.

When questioned about his plans after graduation, Tom replied he wanted to go to work for a consulting firm down in Florida, and then quickly added he and his wife were going down for a vacation this Christmas as they had done the previous year.

SOCIETIES & FRATERNITIES *(Cont. fr. page 18)*

cil. The social activities consist of two stag parties and a picnic. These affairs give the student and the C. E. faculty a chance to mingle in an off the cuff manner. Business activities are limited to financing the chapter, membership, corrospondence, parliamentary procedure. A formal meeting is held the first Wednesday of each month in which business is transacted and prominent members of the civil engineering profession are invited to discuss new developments in engineering or interesting features of their specialized field. Movies of C. E. interest are also shown at intervals. Students papers are given at the final meeting of each year and prizes are awarded for the best graduate and undergraduate papers. Field trips to local construction projects, laboratories, and offices are also arranged.

Here is this year's schedule to date:

4 Nov. 1953—Vincent B. Smith; Pres. of D. C. Section of A. S. C. E.

2 Dec. 1953—Cedric Stainer - World famous consultant on Prestressed Concrete from Preload Engineers.

6 Jan. 1954—Talk sponsored by Portland Cement.

3 Feb. 1954—Douglas Gillette - No introductions necessary.

3 March 1954—Open.

7 April 1954—Presentation of Student papers.

5 May 1954—Movie, "Building for the Nations" - The construction of the Secretariat Bldg. - Elections.

Officers for the school year are: Jim Colangelo, Chairman; Bill Weidemeyer, Vice-Chairman; Jim Saunders, Secretary and Stuart Ferret, Treasurer.

THETA TAU

• Theta Tau, GW's professional engineering fraternity, was founded at the University of Minnesota on October 15, 1904. It was from the first intended to be a professional general engineering fraternity to stress and teach the high ethical and professional standards and to foster close fraternal relations among its members. Gamma Beta Chapter, one of many chapters in university and college campuses throughout the United States, was established at George Washington University in 1935.

Membership to Theta Tau is limited to students of Engineering of "personal worthiness and of promising engineering ability." Its scholastic standards are high. Members are chosen from among those outstanding students who have successfully completed at least their freshman year in the School of Engineering and who have shown an interest in the Fraternity and its ideals. Several rush parties are held each year to give both the prospective and active members an opportunity to become better acquainted with each other.

As a professional fraternity Theta Tau does not compete with the social fraternities, nor are the membership requirements such that it competes with or serves as an academic honor society. Here at George Washington University one of the prime functions of Gamma Beta Chapter and also an excellent recommendation for membership is

(Please turn to page 26)

"Allis-Chalmers Graduate Training Course Was Just What I Needed,"

says LOWELL E. ACKMANN

University of Illinois—B.S., E.E.—1944
and now manager, Peoria, Ill., Branch Office

"MY EXPERIENCE with machinery in the Navy during the war convinced me I needed a training course. There was so much equipment on board that was a complete mystery to me that I became very 'training-course minded'.

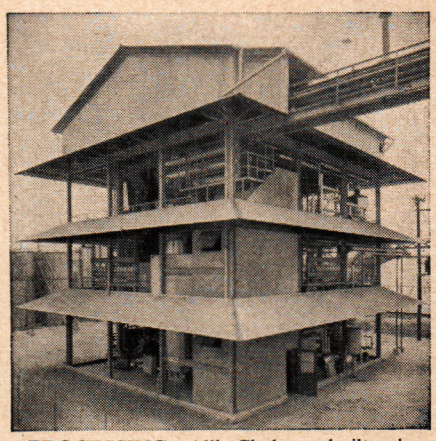
"After investigating many training courses, the one at Allis-Chalmers looked best to me then—and still does.

"In my opinion, the variety of equipment is what makes Allis-Chalmers such a good training spot.

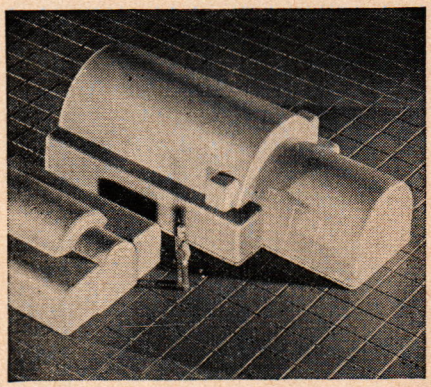
"No matter what industry you may be interested in, Allis-Chalmers makes important, specialized equipment for that industry. Electric power, steel, cement, paper, rock products, and flour milling industries—to name a few, are big users of A-C equipment.

"Before starting on the Allis-Chalmers Graduate Training Course, I thought I would like selling, preferably technical selling but, as is often the case, I didn't know for sure. This course, together with some personal guidance, helped me make up my mind. That, too, is an important advantage of the GTC program.

"But whether you want to be a salesman or designer, production engineer, or research engineer, Allis-Chalmers, with its wide variety of equipment and jobs, is an ideal place to get off to a good start—without wasting time."



PROCESSING—Allis-Chalmers built solvent extraction plant processes one hundred tons of rice bran per day at oil processing plant in Texas.



POWER—Models show comparative size of generators having the same rating with and without super-charged hydrogen cooling. Allis-Chalmers is first to supply super-charged hydrogen cooling.

Facts You Should Know About the Allis-Chalmers Graduate Training Course

1. It's well established, having been started in 1904. A large percentage of the management group are graduates of the course.

2. The course offers a maximum of 24 months' training. Length and type of training is individually planned.

3. The graduate engineer may choose the kind of work he wants to do: design, engineering, research, production, sales, erection, service, etc.

4. He may choose the kind of power, processing, specialized equipment or industrial apparatus with which he will work, such as: steam or hydraulic, turbo-generators, circuit breakers, unit substations, transformers, motors, control, pumps, kilns, coolers, rod and ball mills, crushers, vibrating screens, rectifiers, induction and dielectric heaters, grain mills, sifters, etc.

5. He will have individual attention and guidance in working out his training program.

6. The program has as its objective the right job for the right man. As he gets experience in different training locations he can alter his course of training to match changing interests.

7. For information watch for the Allis-Chalmers representative visiting your campus, or call an Allis-Chalmers district office, or write Graduate Training Section, Allis-Chalmers, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

C-5676

SOCIETIES – FRATERNITIES *(Cont. fr. page 24)*

an active interest in the extra-curricular activities of the School of Engineering. The social activities of the chapter now include various events, an annual football game and shrimp feast, several informal parties both stag and drag and the highlight of each semester, the initiation banquet and dance. These have proved to be the Chapter's best answer to the establishment of a common bond between the various options represented in our membership. Each year the fraternity presents an award to that graduating senior who has, in the opinion of the faculty, contributed the most to the extra-curricular activities of the School of Engineering and to the University as a whole.

Officers for the coming year are: Tom Flanagan, Regent; Bob Rodgers, Vice-Regent; Phil Martin Secretary and Paul Kuzio, Treasurer.

SIGMA TAU

• Sigma Tau, GW's honorary engineering fraternity, was founded in Lincoln, Nebraska, on February 24, 1904. In its 48 years of existence it has attained nationwide recog- recognition and prominence. Early in 1930, Sigma Tau accepted an invitation to join the Association of College Honor Societies. Xi Chapter, one of 28 chapters on university and college campuses throughout the United States, was established at George Washington University on April 18, 1921.

Membership to Sigma Tau is selected from those men

(Please turn to page 30)

PUBLIC LIFE *(Continued from page 22)*

He is needed in government with its necessary and assumed intrusion into business. Professional management provides excellent training for political management and public service.

There is another important reason for such broad career development. One's real interest may not be discovered early in life—frequently after years of application and frustration. It is especially unfortunate when the incorrect start has been made in the difficult field of engineering. Formal study in law is excellent rounding and reinforcement for engineers and would also do more than anything else to reveal one's real talents and abilities where there is any doubt. It would have to be integrated into an already seemingly impossible array of demands upon interest and time.

Wars have seemingly been unavoidable and engineering was first professionally recognized as an aid in warefare. The engineer must direct the use of these instruments when such use exceeds the competence of professional military men. He is indispensable in the national defense activities during peace and war. This is important public service.

No imposing case has been made for the engineer in public life; nor are apologies made. If the whole range of human endeavor is scanned without emotion or prejudice it must be concluded that the engineer has thus far given a good account of himself. He has made many contributions which are visible and countless more which, like taxes, are invisible and have raised standards of living. The hope is that somehow he may make more in public life and stabilize the present civilization which, according to the fears of many, is rushing to its doom.

Prof.: "Tell us all you know about nitrates."

Engineer: "I don't know much about them except that they're cheaper than day rates."

—Quadrangle

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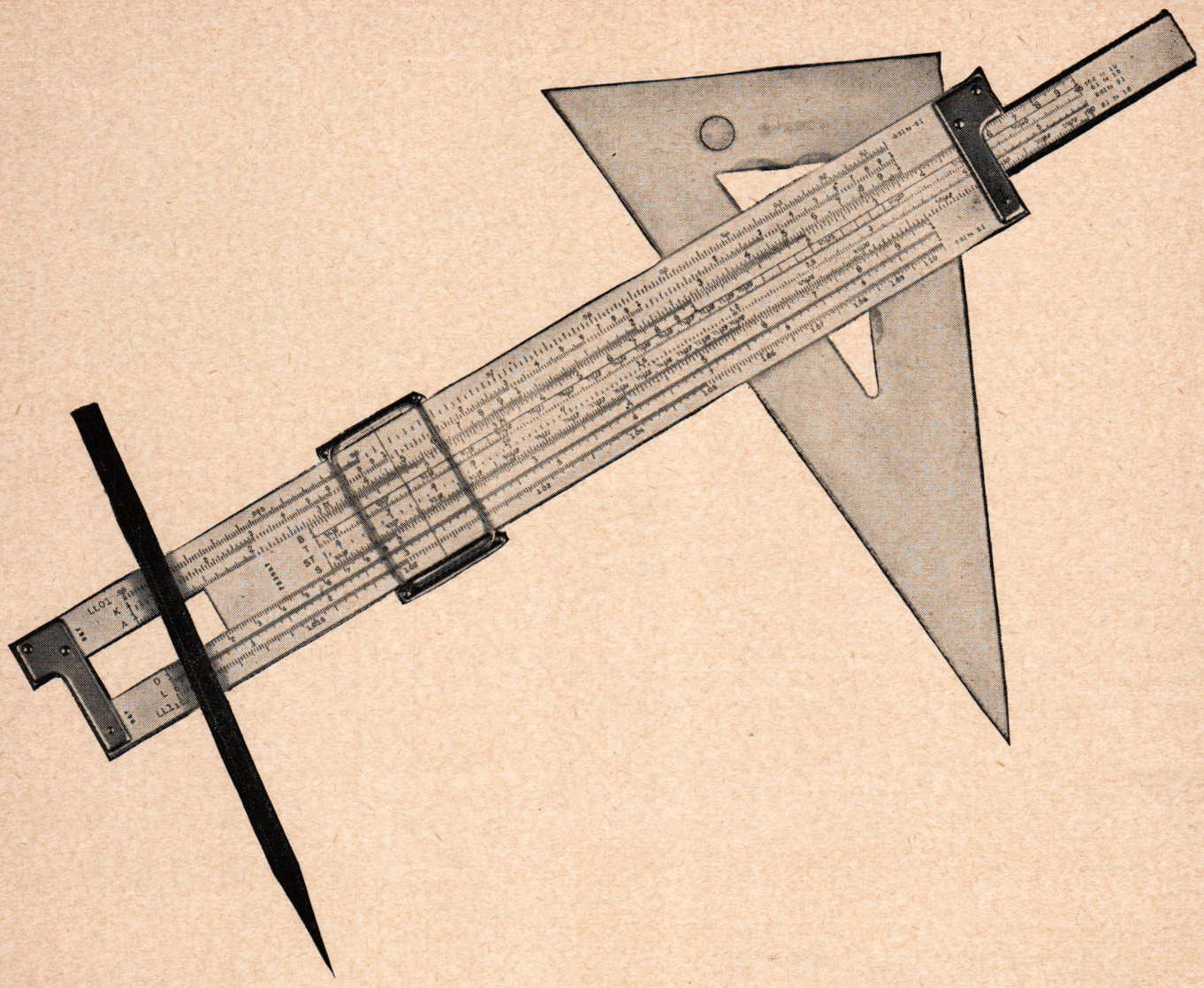

You'll find classmates—and a future—at Boeing!

Men from more than 120 top engineering schools are building rewarding careers at Boeing. So chances are, you'd be working with some of your classmates here. And in addition you'd be a member of an Engineering Division renowned for its trail-blazing contributions to both military and civil aviation.

If that's the kind of engineering prestige you'd like to enjoy, look into Boeing opportunities. This company has been growing steadily for 37 years.

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Plan *now* to build your career as a member of Boeing's distinguished Engineering personnel after graduation. Boeing has present and future openings for experienced and junior engineers in aircraft

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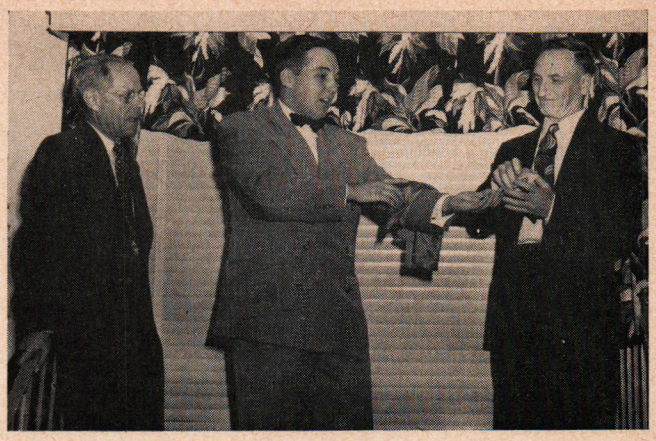
For further information, consult your Placement Office, or write:

JOHN C. SANDERS, Staff Engineer — Personnel
Boeing Airplane Company, Seattle 14, Washington

BOEING

MESSAGE *(Continued from page 11)*

Many years ago some one realized that too many engineering students were attending The George Washington University without reaping such benefits of collegiate life as a brotherhood with his fellow student or a certain kinship with his instructors. Many, like some of you new-comers, merely came to school for a few hours and then returned to their separate lives. The genii of their time hit on an idea that was designed to bring together the newcomers, the oldsters, and the faculty in a spirit of fellowship and conviviality. Throughout the years the Mixer has become somewhat of an institution—but to be a living institution, it must have life—and life is supplied by you. This year we're putting a new coat of paint on the old institution. We're going to serve punch and sandwiches. There's goin to be a small band, so bring your wife or best gal—or both—and meet the professors and their best gals and wives—or both. Come on out and hear something about the societies have planned for this year. Not in the form of speeches, mind you, just neighborly talk, man to man. Get to know the Dean. You'll have to talk to Prof. Ben Cruickshanks —no one goes through Engineering School without attending one of his classes. You might even bump into Dr. Marvin, he's president of the University. If I sound like a name dropper—I mean to. Beause that's the purpose of the mixer.....drop around and introduce yourself to the guy—or gal next to you. Get to know the students who are the chairmen or presidents of the various societies. Learn how you can become a part of these groups. How you can become an integral part of the Engineering School and of the University. Learn how you can help make G. W. a better place in which to spend four or more years of your time. And while you're getting all this "education" you'll be working to make your 1953 Engineers' Mixer a huge success. It's going to be held on Wednesday evening, October 7, and starts about 8:30 p.m. Let's all meet at the Mixer. See you there!



Prof. Cruickshanks learns a trick or two from Jim Speares at last year's Engineers' Mixer while Prof. Brady looks on.

Editor's Note:

The Mixer will be held in the lower lounge of Lisner Auditorium.

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ESTIMATES FREELY GIVEN

DEAN'S COLUMN *(Continued from page 10)*

It is gratifying to tell you that we have had three research projects initiated this summer in which the faculty are participating. One project is under a National Science Foundation grant, the others are being done for defense agencies.

President Marvin, Trustee Tompkins, the University architects, and the faculty have been busy on building plans and we expect an announcement by President Marvin momentarily.

It is again my pleasure to welcome on behalf of the school those of you who are just joining our family; please come in and see me so that we may know each other better. We are happy as always that the oldsters are back with for another year of pleasant and profitable pursuit of that elusive state of mind we know as engineering education. To all of you I wish the satisfaction of a year of achievement and progress toward your goals.

How your pipe dreams may become realities!

Lengths of Republic Electric Weld Casing are rapidly joined together and lowered hundreds or thousands of feet into an oil or gas well to line it with tough steel—to protect its walls against the tremendous pressures that otherwise might cause collapse of the hole.

YOU MAY NEVER DRILL for oil as a career. Nevertheless, this pipe has a message for you.

Pioneered some 23 years ago by Republic, this pipe is made by a process of electric resistance welding. Flat-rolled steel, uniformly thick, with both sides visible for inspection, is cold formed and electric welded into tubular form. The resulting pipe is uniformly round, uniform in wall thickness and uniformly strong throughout every inch of its structure. These qualities have speeded installation and improved pipe performance. Millions of feet of casing and tubing, and thousands of miles of line pipe in service have proved the dependability of the process.

You may be out of school for several years before all the economic importance of these qualities have become a part of your experience. At this point, just consider this one fact about electric welded steel pipe: it was developed by a producer of steel. Republic is now the leading manufacturer of this type of product. Republic also fabricates many other products from steel—such as tubing, conduit, culverts, radio towers, windows, office furniture, steel cabinets for kitchens. It is a leading manufacturer of these products, too.

Your pipe dreams of success in industry are more likely to flow with realities if you associate with a dynamic company. Some companies merely produce a material. Wouldn't you be better off with a company that not only produces a basic material, but also knows how to design and fabricate its own product? *That* company really knows what it is making—and selling. Such a company is Republic Steel.

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SOCIETIES & FRATERNITIES

(Cont. fr. page 26)

who rank in scholarship among the upper third of the junior and senior classes of the Engineering School. However, this is but one of the requirements for membership. Those who have attained the necessary scholarship must have demonstrated a willingness to participate in the University functions, such as actively joining the engineering societies and attending university-sponsored group activities. The prospective member must also exhibit the practical qualities that are necessary attributes to every successful engineer. As a member of the Engineers' Council, Sigma Tau takes an active interest in its efforts to constantly increase the prestige and potential of the Engineering School. Plans are in effect toward the initiation of a program for building visual aides as a means of explaining the more complex phases of engineering education. Because George Washington University includes many foreign-born among its student body, Sigma Tau is participating in a program designed to help these men overcome the language barrier.

Membership in Sigma Tau is an honor for which every engineering student should strive. Not only will it stimulate him to greater scholastic achievement, but it will also promote development of leadership, which carries with it the principle of service, and the measure of service is the true index of worth of the student and the organization that counts him as a member.

As part of the program of the Annual Engineers' Banquet sponsored by the Engineers' Council, of which the fraternity is an active member, Sigma Tau bestows a medal of achievement upon the engineering student, usually a sophomore, who has attained the highest grades in his engineering courses during his freshman year.

CURRICULUM

(Continued from page 9)

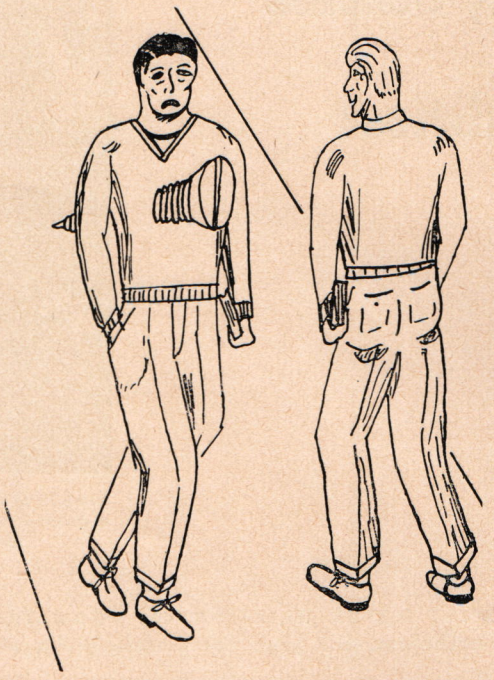
Electrical Engineering

Deleted:	
EE 142—Radio Wave Propagation	3 (comm.)
Electives	4 (power)
ME 115—Mechanical Laboratory	2 (power)
Added:	
CE 140—Materials and Hydraulics Lab.	2
English 11—Writing of Technical Reports	3
Phys. 133—Electronics Circuits	3 (power)

Bachelor of Science

Deleted:	
Geology 21-22	6
BA 101-102—Business organization (Non-BA majors)	6
Added:	
Phys. 55—Physical Measurements	2
English 11—Writing of Technical Reports	3
Phy. 132—Electronics	3
CE 187-188—Engineering Contracts and Specifications	4

(Students taking the Reserve Officers Training Course should consult the 1953-1954 catalog for further changes).



Hi Sam! How did you make out in summer suhool?

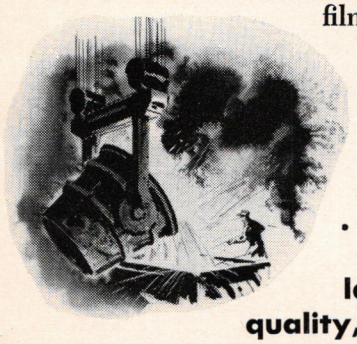
In Our Next Issue

Prof. Benjamin Cruickshanks will tell us how the engineering student of today compares with the student in his undergaduate days at G. W., 35 years ago; and also how the Engineering School has grown in that time.

Barry Boyce, the Vice-President of the Engineers' Council will describe the organization and functions of the Council as well as making known the schedule of events for the coming year.

Photography helps a New Steel Mill roll into action

Fairless Works, U. S. Steel's new Eastern Seaboard mill, is now starting operations—and growing—at the same time. And camera and film play their parts in both.



. . . to help locate ore, plot transportation, lay out plants, control quality, improve production, U. S. Steel puts Photography to work.

From ore through research and production, Photography is one of Steel's important operation tools. It helped locate and appraise the new Venezuelan Cerro Bolivar deposits which sparked this great new seaboard mill. It helped chart the ore's course to the sea—helped plan the plant and keeps a running record of its growth. And day after day it's at work in the research lab improving steel metallurgy, and on the production line controlling quality.

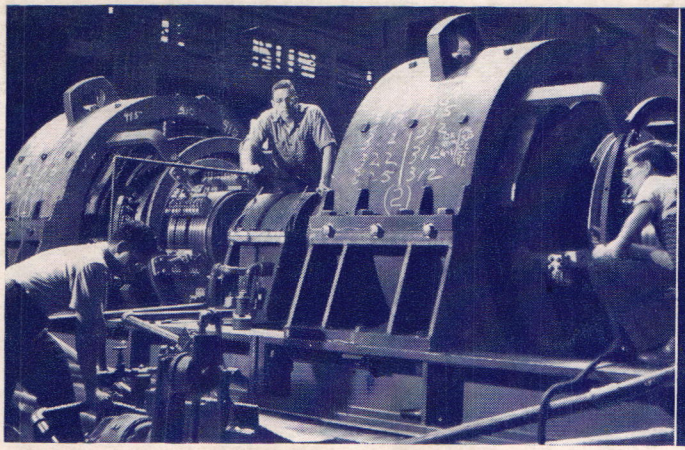
Countless numbers of America's varied industries, large and small, use photography in many ways to save time, speed accomplishment, increase production, and cut costs.

In fact, so many new applications of photography are being found, that many well-qualified graduates in the physical sciences and in engineering have been led to find positions with the Eastman Kodak Company. Returning servicemen, too, have found new opportunity here.

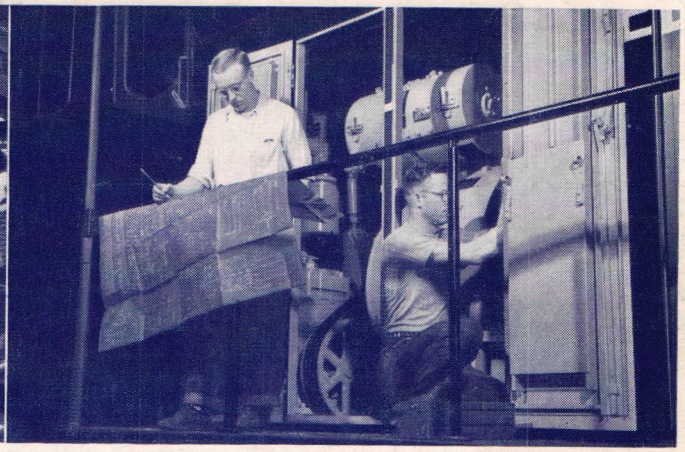
If you are interested, write to Business and Technical Personnel Dept., Eastman Kodak Company, Rochester 4, N. Y.

Eastman Kodak Company

Rochester 4, New York



CHARLES SNYDER, R.P.I., (center) adjusting 5250 triple-unit d-c mill motor for use in a steel mill.



Engineers RICHARD RENK, IOWA STATE, (left) and ALLEN FRINK, CATHOLIC UNIV., make last-minute check on 1600-hp diesel-electric switcher before it is moved to test track.

THEY'RE "GOING PLACES" AT GENERAL ELECTRIC

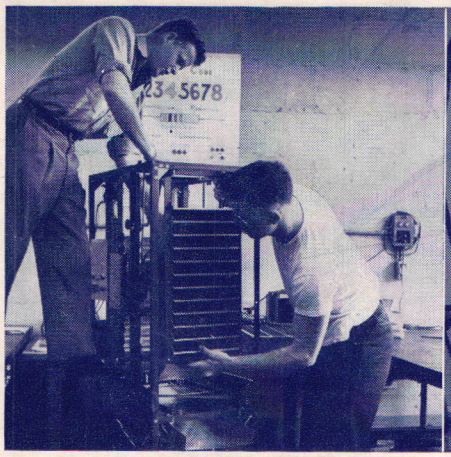
Like these young men pictured here, hundreds of scientists, engineers, chemists, physicists and other college graduates are "getting ahead" fast at General Electric . . . . and they are working on projects with the assurance that their contributions are meaningful and important.

They are moving up rapidly because at General Electric a world of opportunity awaits the college man of today—a world limited only by his own ability and interest. The variety of General Electric products and the diversity of the Company's operations provide virtually unlimited fields of opportunity and corresponding rewards, both materially and in terms of personal satisfaction to young men who begin a G-E career.

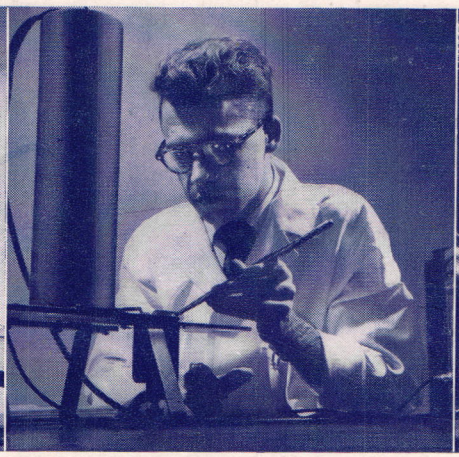
New developments—in silicones, electronics, semi-conductors, gas turbines, atomic power, and others—springing from G-E research and engineering, are creating exciting new opportunities, and are giving college graduates the chance of finding satisfying, rewarding work.

And by placing prime importance on the development of talent and skill, developed through G-E training programs and broadened through rotational job programs, and by providing incentives for creative minds, General Electric is hurrying young men into success in an industry that is devoted to serving all men through the ever-increasing and ever-widening uses for electricity, man's greatest servant.

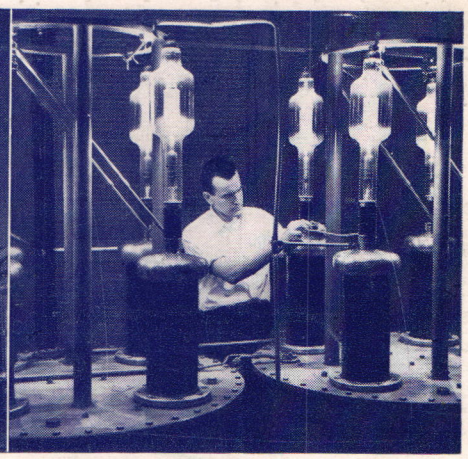
If you are interested in building a career with General Electric see your college placement director for the date of the next visit of the General Electric representative on your campus. Meanwhile, for further information on opportunities with General Electric write to College Editor, Dept. 2-123, General Electric Company, Schenectady 5, New York.



Test engineers E. K. VON FANGE, U. OF NEB., (left) and R. E. LOVE, U. OF TEXAS, work on stacker and stapler built by them for homework project.



Physicist ROGER DEWES, BROOKLYN POLY., working with scintillation counter in G.E.'s Engineering Laboratory.



ANTHONY TERZANO, PRATT INSTITUTE, checks connections on direct-current rectifier which charges 7,500,000-volt impulse generator in G.E.'s new High-voltage Laboratory.

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